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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/071,771

02/06/2002

Sreen A. Raghavan

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EXAMINER

TRAN, PABLO N

ART UNIT

PAPER NUMBER

2618

DATE MAILED: 06/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/071,771

Applicant(s)

RAGHAVAN ET AL.

Examiner

Pablo N. Tran

Art Unit

2618

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 May 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 10-19 and 32-41 is/are rejected.
- 7) ☒ Claim(s) 5-9 and 18-31 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>05/05/06, 05/31/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 13-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 13-17, the claimed limitations "small portion" and "second portion" render the claim indefinite. Is the term "portion" refers to a portion of a transmitter, receiver, amplitude, phase, feedback, feed-forward, or is it a coefficient? Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-4 and 32-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chan (6,259,745) in view of Wang (5,822,368).

As per claims 1-2, 36, and 41, Chan discloses a transmission system (fig. 1) having a plurality of receivers and each of the plurality of receivers receiving signals from one of a plurality of transmission bands (col. 28/ln. 30-34), the plurality of transmission bands being transmitted on a single transmission medium (fig. 1/no. 2, 3), and a cross-channel interference canceller (fig. 2/no. 25, 26, 27, col. 7/ln. 66-col. 8/ln. 30), the cross-channel interference canceller (fig. 2/no. 25, 26, 27) coupled to receive the signals from each of the plurality of transmission bands (where it is clear that the transceiver (fig. 1/no. 2, 3) comprising the cross-channel interference canceller coupled on the receiver side to cancel cross channel interference from each the receive transmission band). Chan disclosed such receiver but not explicitly the configuration of the receiver. However, Wang disclosed such receiver's configuration of having a down-converter (fig. 5/no. 510), a filter (fig. 5/no. 590), an AD converter (fig. 5/no. 515), an equalizer (fig. 5/no. 570), and a decoder (fig. 3/no. 310, 315). Therefore, it would have been obvious to one of ordinary skill in the art at the time to provide such receiver of Wang to the transmission system of Chan to provide a more reliable transmission system wherein error rate is reduced.

As per claims 11-12, the modified communication system of Chan and Wang further discloses a phase correction circuit coupled between the AD converter and equalizer (see Chan, fig. 2/no. 58).

As per claim 13, the modified communication system of Chan and Wang further discloses wherein a small portion of one of the in-phase signal and the quadrature signal are added to the opposite one of the in-phase signal and the quadrature signal.

As per claim 14, the modified communication system of Chan and Wang further discloses wherein a second portion of the opposite one of the in-phase signal and the quadrature signal is added to the opposite one of the in-phase signal and the quadrature signal.

As per claim 15, the modified communication system of Chan and Wang further discloses wherein the small portion and the second portion are adaptively chosen.

As per claims 32 and 37-38, the modified transmission system of Chan further discloses the canceller provides transfer functions coupled between pairs of channels so that each channels can be corrected for cross-channel interference (col. 7/ln. 66-col. 8/ln. 30, col. 11/ln. 63-col. 12/ln. 15).

As per claims 33 and 39, the modified transmission system of Chan further discloses the transfer function includes one or more delays (col. 7/ln. 66-col. 8/ln. 30, col. 11/ln. 63-col. 12/ln. 15, col. 12/ln. 45-56).

As per claims 34 and 40, the modified transmission system of Chan further discloses the coefficients are adaptively chosen (col. 7/ln. 66-col. 8/ln. 30, col. 11/ln. 63-col. 12/ln. 15, col. 12/ln. 45-56).

As per claims 35, the modified transmission system of Chan further discloses the operating frequency is adjusted to match the corresponding transmitter transmission band (col. 7/ln. 66-col. 8/ln. 30, col. 11/ln. 63-col. 12/ln. 15, col. 12/ln. 45-56).

5. Claims 3-4, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chan (6,259,745) in view of Wang (5,822,368) and further in view of Baker (6,163,563).

As per claim 3, the modified transmission system of Chan does not explicitly disclose that the in-phase signal being an input signal multiplied by a cosine function and the quadrature signal being an input signal multiplied by a sine function. However, such claimed limitation is well known, as taught by Baker (col.4/ln. 58-col. 5/ln. 11). Therefore, it would have been obvious to one of ordinary skill in the art at the time to provide such method of Baker to the modified transmission of Chan to utilize such usefulness of communication system in equipment employing integrated circuits and provide such advantage of reducing circuitry complexity.

As per claim 4, the modified transmission system of Chan in view of Baker further disclosed an in-phase filter (see Baker, fig. 1/no. 42) and a quadrature filter (see Baker, fig. 1/no. 44).

As per claim 10, the modified transmission system of Chan in view of Baker further disclosed a first AD converter (see Baker, fig. 1/no. 46) coupled to the in-phase filter and a second AD converter (see Baker, fig. 1/no. 48) coupled to the quadrature filter.

Allowable Subject Matter

6. Claims 5-9 and 18-31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Art Unit: 2618

7. Claims 16-17 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Response to Arguments

8. Applicant's arguments filed 03/28/06 have been fully considered but they are not persuasive.

The Applicant's stated that "Chan does not teach the plurality of transmission bands being transmitted on a single transmission medium". In response to the Applicant, Chan disclose a transceiver (fig. 1/no. 2, 3) wherein the transceiver is capable of transmitting plurality of transmission bands. The Applicant's further stated that "Chan does not teach the cross-channel interference canceller coupled to receives the signals from each of the plurality of transmission bands". In response to the Applicant, Chan disclose that the cross-channel interference canceller (fig. 2/no. 25, 26, 27) coupled on the receiver side to cancel cross channel interference from each the receive transmission band (col. 7/ln. 66-col. 8/ln. 30).

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

Art Unit: 2618

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pablo Tran whose telephone number is (571)272-7898. The examiner normal hours are 9:30 -5:00 (Monday-Friday). If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban, can be reached at (571)272-7899. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

10. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-directauspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PABLO N. TRAN
PRIMARY EXAMINER




June 3, 2006